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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,626	12/01/2006	Yosi Shacham-Diamond	067270205274-US0	4033
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EXAMINER				
BAREFORD, KATHERINE A				
ART UNIT		PAPER NUMBER		
1792				
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11/20/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/597,626

Applicant(s)

SHACHAM-DIAMOND ET AL.

Examiner

Katherine A. Bareford

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 31, 32, 40-50, 53, 54, 56, 58, 60, 63-65, 73, 116, 130 and 132 is/are pending in the application.
- 4a) Of the above claim(s) 1, 31, 32, 40, 56, 58, 60, 63-65, 73, 116 and 132 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-50, 53, 54 and 130 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/23/07
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The preliminary amendment of August 1, 2006 has been received and entered. With the entry of the amendment, claims 2-30, 33-39, 51-52, 55, 57, 59, 61-62, 66-72, 74-115, 117-129, 131 and 133 are canceled, and claims 1, 31, 32, 40-50, 53, 54, 56, 58, 60, 63-65, 73, 116, 130 and 132 are pending in the case.

Election/Restrictions

2. Applicant's election of Group II, claims 41-50, 53-54 and 130 in the reply filed on November 10, 2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 1, 31, 32, 40, 56, 58, 60, 63-65, 73, 116 and 132 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 10, 2009.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 41-50, 53 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 41, lines 1, 6 and 8, "tarnish-resistant" is unclear as to what is required for an article to be tarnish-resistant as opposed to susceptible to tarnish. If it is meeting the reflectance requirements as described in claim 41, this is not clarified in the claim. For the purpose of examination, the Examiner considers a plating that meets the claimed reflectance requirements to be "tarnish-resistant" but applicant should clarify what is actually intended without adding new matter.

Claim 41, last line, "ambient" air is unclear if that means simply exposed to regular "air" (at any temperature) as opposed to specifically provided oxygen or nitrogen, for example, or whether the regular air must be unheated. The examples in the specification describe using heated air. For the purpose of examination, the Examiner considers either to meet the claim, however applicant should clarify what is actually intended without adding new matter.

Claim 45, "EDTA" should be spelled out as to what is actually required without adding new matter.

The other dependent claims do not cure the defects of the claims from which they depend.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 41-50, 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inberg et al "Material and Electrical Properties of Electroless Ag-W Thin Film" (hereinafter Inberg article) in view of Franz (US 3723138).

Claim 41: Inberg article teaches a method of providing a silver-tungsten coated object. Abstract and pages 355-356. An active silver tungsten electroless deposition solution is provided. Page 355. The solution contains silver and tungsten sources, reducing agent and complexing agent. Page 355. Ag-W films were deposited on the object to be plated from the deposition solution. Page 355. The silver tungsten coated

object was plated with various amounts of tungsten so as to control the resulting reflectance. Page 357 and Figure 4. For example, a 3.2 atomic wt% tungsten alloy can be provided with a reflectance of more than 0.6 at 700 nm after a time period of 1 hour in free air (ambient air) at 200 degrees C. Page 357, Figure 4(b). It is also indicated that after annealing the reflectance will actually increase over time at 3.2 atomic wt% tungsten. Page 357 (thus indicating providing a reflectance of more than 0.6 at 700 nm after contact for extended periods of unheated ambient air, and shows that reflectance is a result effective variable in ambient air that would be obvious to optimize through routine experimentation). As a result, the resulting coating will be tarnish-resistant.

Inberg article does not teach mixing first and second aqueous solutions and specifically immersing the object in the active electroless deposition solution for a time period sufficient to provide the coating. However, Franz teaches that when providing silver electroless plating solutions, it is well known to provide an active solution with silver metal sources, reducing agent, complexing agent and water. Column 1, lines 35-45 and column 2, lines 55-60. The active solution is typically formed by mixing a first aqueous solution with a reducing agent and a second aqueous solution that contains the silver source just prior to plating. Column 1, lines 35-45 and column 3, lines 50-60. Franz further teaches that it is well known to provide electroless plating by dipping (immersing) the object to be coated in the active electroless plating solution. Column 4, lines 20-25. Franz further teaches that plating is applied for a controlled amount of time. Column 3, line 50 through column 4, line 20. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify Inberg article to form the active electroless deposition solutions by mixing together aqueous solutions of reducing agent and metal sources as suggested by Franz in order to provide a desirable plating solution as Inberg article provides modifying a silver electroless plating solution by adding tungsten and Franz teaches conventional methods for forming aqueous silver plating solutions that would apply to Inberg article as well since it is a modification of conventional silver electroless plating. It further would have been obvious to modify Inberg article to specifically immerse the object to be plated in the plating solution for a set amount of time as suggested by Franz in order to provide a desirable plating as Inberg article provides modifying a silver electroless plating solution by adding tungsten and then plating and Franz teaches conventional methods for forming aqueous silver plating solutions and thereafter plating that would apply to Inberg article as well since it is a modification of conventional silver electroless plating.

Claims 42-43: Inberg article provides that the reducing agent is hydrazine hydrate. Page 355. Franz provides that the first solution comprises a reducing agent. Column 1, lines 35-45.

Claim 44-45: Inberg article teaches that the active plating solution contains a chelator (another name for complexing agent) such as ammonia. Page 355. Franz provides that as well as ammonia, EDTA can be used as a complexing agent for silver electroless plating solutions. Column 2, lines 55-60. As a result, it would have been obvious to modify Inberg article in view of Franz to further use EDTA as a complexing

agent rather than ammonia with an expectation of similar plating results, since Franz teaches that either EDTA or ammonia provides desirable complexing for silver electroless plating solutions. It further would have been obvious to provide the reducing agent in either the first or second solution (as worded the first solution in claim 44 can be either that containing the metal ions or the reducing agent) because (1) Franz shows that the metal ions containing solution can have complexing agent such as ammonium hydroxide (ammonia) (column 2, lines 65-72) and (2) it would be obvious to provide the complexing agent with the reducing agent containing solution as well with an expectation of similar results as suggested by *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is *prima facie* obvious.).

Claim 46: the second solution would contain the silver and tungsten ion source because as described by Franz, the second solution contains the metal ion source. Column 1, lines 35-45 and the metal ions (both silver and tungsten) would be kept separate from the reducing agent solution, to allow mixing of the metal ions/reducing agent just before coating.

Claims 47-50: Inberg article provides that the article to be plated can be a metallic object, such as a silver object (which would be inclusive of an object with a metallic layer/silver layer, given the teaching of silver plate as the silver object in claim 50. Moreover, since the surface to be plated is silver, the entire article to be plated could be such a silver material with an expectation of similar plating results, because the surface to be plated remains the same). Pages 356, 357 (deposit on Ag seed layer of sputtered

Ag). Inberg article further suggests that the silver object be used for electrical purposes and thus be an electrical object (page 355). As to claim 50, it would be obvious that that silver object can comprise fine silver with an expectation of similar results as the "comprise" indicates that the silver can be a silver layer, and Inberg article teaches simply sputtering Ag, which would indicate, at the least, that a 100% silver layer can be formed and used.

Claims 53-54: Inberg article provides that the article to be plated can be a non-metallic object such as an inorganic material (silicon). Page 355 (p-type silicon wafers). Franz also teaches silver plating on the inorganic, non-metallic material of glass. Column 1, lines 15-25.

9. Claim 130 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al (US 6188232) in view of Franz (US 3723138).

Claim 130: Akram teaches that it is well known to plate combinations of metals on substrates by electroless plating, where the combination of metals, as desired can include silver, tungsten and molybdenum from a selection of the possible listed metals. Column 5, lines 5-25.

Akram teaches all the features of this claim except the plating in the plating composition for a sufficient time to plate the surface with the silver, tungsten and molybdenum layer. However, Franz teaches that when providing silver electroless plating solutions, it is well known to provide an active solution with silver metal

sources, reducing agent, complexing agent and water. Column 1, lines 35-45 and column 2, lines 55-60. Franz further teaches that it is well known to provide electroless plating by dipping (immersing) the object to be coated in the active electroless plating solution. Column 4, lines 20-25. Franz further teaches that plating is applied for a controlled amount of time. Column 3, line 50 through column 4, line 20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Akram to specifically immerse the object to be plated in the plating solution for a set amount of time as suggested by Franz in order to provide a desirable plating as Akram provides using an electroless plating process to provide plating that can include silver metal alloys with tungsten and molybdenum and Franz teaches conventional methods for forming aqueous silver plating solutions and thereafter plating that would apply to Akram as well since it acts as a modification of conventional silver electroless plating.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792